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**UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)**

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
A-377

Total Pages in this Submission

TO THE ASSISTANT COMMISSIONER FOR PATENTS

Box Patent Application
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

IMAGE PROCESSING SYSTEM

and invented by:

Mitsuhiro HAMASHIMA et al

If a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:

- ☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____
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- Which is a:
- ☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Enclosed are:

Application Elements

1. ☐ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 11 (eleven) pages and including the following:
 - a. ☒ Descriptive Title of the Invention
 - b. ☐ Cross References to Related Applications (if applicable)
 - c. ☐ Statement Regarding Federally-sponsored Research/Development (if applicable)
 - d. ☐ Reference to Microfiche Appendix (if applicable)
 - e. ☒ Background of the Invention
 - f. ☒ Brief Summary of the Invention
 - g. ☒ Brief Description of the Drawings (if drawings filed)
 - h. ☒ Detailed Description
 - i. ☒ Claim(s) as Classified Below
 - j. ☒ Abstract of the Disclosure

UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
A-377

Total Pages in this Submission

Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*
- a. ☒ Formal Number of Sheets 3 (three)
- b. ☐ Informal Number of Sheets _____
4. ☒ Oath or Declaration
- a. ☒ Newly executed *(original or copy)* ☐ Unexecuted
- b. ☐ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*
- c. ☒ With Power of Attorney ☐ Without Power of Attorney
- d. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application,
see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under
Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby
incorporated by reference therein.
6. ☐ Computer Program in Microfiche *(Appendix)*
7. ☐ Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all must be included)*
- a. ☐ Paper Copy
- b. ☐ Computer Readable Copy *(identical to computer copy)*
- c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☒ Assignment Papers *(cover sheet & document(s))*
9. ☐ 37 CFR 3.73(B) Statement *(when there is an assignee)*
10. ☐ English Translation Document *(if applicable)*
11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS Citations
12. ☒ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☒ Certificate of Mailing
- ☐ First Class ☒ Express Mail *(Specify Label No.):* EL697074967US

UTILITY PATENT APPLICATION TRANSMITTAL (Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
A-377

Total Pages in this Submission

Accompanying Application Parts (Continued)

15. ☒ Certified Copy of Priority Document(s) (if foreign priority is claimed)

16. ☒ Additional Enclosures (please identify below):

Inventor Information Sheet (Patent Bibliographical Data)

Fee Calculation and Transmittal

CLAIMS AS FILED

For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	4	- 20 =	0	x \$18.00	\$0.00
Indep. Claims	1	- 3 =	0	x \$78.00	\$0.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
BASIC FEE					\$690.00
OTHER FEE (specify purpose) Assignment Recordation Fee					\$40.00
TOTAL FILING FEE					\$730.00

☒ A check in the amount of \$40.00 to cover the ^{recordal} filing fee is enclosed.

☐ The Commissioner is hereby authorized to charge and credit Deposit Account No. as described below. A duplicate copy of this sheet is enclosed.

- ☐ Charge the amount of _____ as filing fee.
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- ☐ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

Dated:

Aug. 25, 2000

James H. Walters
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CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)Applicant(s): **Mitsuhiro HAMASHIMA et al**

Docket No.

A-377

Serial No.

Filing Date

Examiner

Group Art Unit

Invention:

IMAGE PROCESSING SYSTEM

I hereby certify that the following correspondence:

New Patent Application Transmittal (& documents & fees listed as enclosed therein)

(Identify type of correspondence)

is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under

37 CFR 1.10 in an envelope addressed to: The Assistant Commissioner for Patents, Washington, D.C. 20231 on

August 25, 2000
(Date)**James H. Walters***(Typed or Printed Name of Person Mailing Correspondence)**(Signature of Person Mailing Correspondence)***EL696074967US***("Express Mail" Mailing Label Number)***Note: Each paper must have its own certificate of mailing.**

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CORRESPONDENCE INFORMATION

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APPLICATION INFORMATION

Title Line One:: IMAGE PROCESSING SYSTEM
Total Drawing Sheets:: 3
Formal Drawings?: Yes
Application Type:: Utility
Docket Number:: A-377
Secrecy Order in Parent Appl.?: No

REPRESENTATIVE INFORMATION

Representative Customer Number:: 802
Registration Number One:: 35731

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Express Mail #EL696074P000

PRIOR FOREIGN APPLICATIONS

Foreign Application One:: 11-252920

Filing Date:: 09-07-1999

Country:: JAPAN

Priority Claimed:: Yes

Source:: PrintEFS Version 1.0.1

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Mitsuhiro Hamashima et al
S. N.
Filed: August 25, 2000
For: IMAGE PROCESSING SYSTEM

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Please make the following amendments to this application
prior to examination thereof:

In the Specification:

Page 3, line 9, delete "Fig. 4 is" and substitute --Figs.
4(A) through 4(E) comprise--.

REMARKS

The above amendments are submitted to place the application
into a format consistent with U.S. practice.

Respectfully submitted,



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Exhibit 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

TITLE OF THE INVENTION

IMAGE PROCESSING SYSTEM

5 BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to image processing methods and printers.

2. Description of Background Art

- 10 In general, photographs of individuals contain a scene as a background. In many cases, such photographs cannot suitably be used as pictures for identification or the like as they are. Accordingly, it is conventional practice to remove the background and to print (solid printing) the resulting vacant portion with Bk (black) or the like with a uniform density.

- 15 However, when the background of a person's image or the like is subjected to solid printing, visible unevenness of printing occurs unfavorably because
- 20 completely uniform solid printing cannot be effected owing to uneven ink coating on the transfer ribbon, variations in the energy applied to the thermal head, etc.

SUMMARY OF THE INVENTION

- 25 In view of the above-described problem with the conventional technique, an object of the present invention is to prevent visible unevenness of printing from occurring in the background portion of an image.

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To attain the above-described object, the present invention provides an image processing system including an image processing unit for processing input image data and an output unit for outputting an image processed in the image processing unit. The image processing unit has the function of cutting out a background portion of the image and effecting color specification and further has the function of specifying a method of processing the background portion. When printing the image, the output unit recognizes the background portion on the basis of the color specification and carries out background processing for the recognized background portion on the basis of the specified background processing method.

Preferably, the output unit converts pixels into a pattern and prints the background portion with a discontinuous pattern on the basis of the specified background processing method.

Preferably, the pattern is a stripe pattern or a dot pattern.

Preferably, the color specification specifies a uniform density of a specific color.

Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specification.

The invention accordingly comprises the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the invention will

be indicated in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram illustrating the system
5 configuration of the present invention.

Fig. 2 is a flowchart showing host-side process flow.

Fig. 3 is a flowchart showing printer-side process
flow.

Fig. 4 is a diagram illustrating background
10 processing according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

An embodiment of the present invention will be
described below with reference to the accompanying
15 drawings.

Fig. 1 is a block diagram illustrating the system
configuration of the present invention. The image
processing system according to the present invention
includes an image processing unit 1 for processing image
20 data and an output unit 2. The output unit 2 includes a
display, a printer, etc. for outputting an image processed
in the image processing unit 1. Image data may be captured
with a scanner 3 connected directly to the image
processing system or with a video camera 4 connected to
25 the image processing system via a video terminal. It is
also possible to read image data already stored in the
form of digital data on a CD-ROM 5 or a magneto-optical
disk 6.

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Next, image processing according to the present invention will be described with reference to Figs. 2 to 4 in regard to an example in which clipping is carried out by a manual operation, and a background pattern is manually synthesized, and then the processed image is outputted to a printer. Fig. 2 is a flowchart showing process flow carried out by the image processing unit of the present invention. Fig. 3 is a flowchart showing printer-side process flow. Fig. 4 is a diagram illustrating background processing.

First, processing carried out by the image processing unit (host-side processing) will be described with reference to Fig. 2. A desired image previously stored in an external storage unit is displayed on a display (step S1). The image is composed of R (red), G (green) and B (blue), each represented by 8 bits. On the display, the image is displayed as an image of three colors, i.e. C (cyan), M (magenta) and Y (yellow), for example, as follows:

$C=255-R$, $M=255-G$, $Y=255-B$

In general, photographs of individuals contain a scene as a background. In many cases, such photographs cannot suitably be used as pictures for identification as they are. Accordingly, as shown in part (A) of Fig. 4, a person's image portion of the displayed image is cut out (i.e. the background is deleted) by using publicly known retouching software (step S2). Next, a color to be used for the deleted background portion is specified. For

example, Bk (black) with 64 gradations is specified as shown in part (B) of Fig. 4 (step S3). Next, printer output software is started (step S4) to output the processed image to the printer. In outputting the image, a
5 background processing method (described later) is specified by the printer or output software, and information indicating the specified background processing method is transmitted to the printer (step S5). After the background processing method has been specified, Y, M, C
10 and K image data items are transferred to the printer (steps S6 to S9).

Next, printer-side processing will be described with reference to Fig. 3. The printer receives the information indicating the specified background processing method
15 (step S11). The printer also receives the Y, M, C and K image data items and writes them into respective memories (steps S12 to S15). After receiving all of the image data, the printer feeds paper (step S16) and commences printing. For example, the printer reads the image data items from
20 the respective memories in field sequence, i.e. Y, M and C, to carry out printing (steps S17 to S19). At the step of carrying out printing of the K image data for the background portion, the printer reads the K image data from the associated memory and performs conversion of the
25 K image data into pattern data, writing and reading of the pattern data into and from a memory and printing of the K image data (step S20). In a case where non-processing has been specified as a background processing method, for

example, the K printing process is also effected faithfully to the image data as shown in part (B) of Fig. 4. If patterning with horizontal lines has been specified as a background processing method, the printer recognizes, prior to printing, that Bk with 64 gradations has been specified in the received data, and converts pixels into a pattern. For example, each series of vertical 4 dots of $8 \times 8 = 64$ pixels as shown in part (D) of Fig. 4 is replaced with 1 dot with 255 gradations as shown in part (E) of Fig. 4. Consequently, as shown in part (C) of Fig. 4, an image with the background replaced with horizontal lines drawn at intervals of 4 dots is outputted. If the background is reproduced as a striped discontinuous image area in this way, it is difficult to recognize unevenness in printing of the stripes relative to the surroundings. Thus, unevenness of density and color can be made difficult to perceive by the eye. Stripes to be printed in the background are not necessarily limited to horizontal lines but may be vertical lines, oblique lines, etc. Further, patterns to be printed in the background are not necessarily limited to stripes but may be dots or the like. By reproducing the background as a discontinuous image area using a dot or other similar pattern, it is also possible to make unevenness of density and color difficult to perceive by the eye.

Although in the above-described embodiment the color for the background is specified as a single color, i.e. K, the present invention is not necessarily limited thereto.

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area is judged to be a background. If all of the 3x3 pixels do not have a predetermined combination of gradation values, the area is judged to be a natural image. Only the area judged to be a background is subjected to the background processing. In these cases also, data representing K=64 gradations may be replaced with a pattern, e.g. lines, according to the specified background processing as in the case of the above.

In a case where ink used in the printer consists of three colors, i.e. C, M and Y, data concerning the background is replaced with K data, and this is further replaced with a pattern. Then, the data is returned to a combination of three colors, i.e. C, M and Y. By doing so, a similar effect can be produced. If K=64 is replaced with horizontal lines drawn at intervals of 4 dots as in the above-described example, printing is effected with K=255. In this case, it is possible to print the background with a desired color while patterning it by using a desired combination of three colors, e.g. C=255, M=200 and Y=180. In this case, background processing may be carried out directly, without performing replacement with K data, by judging a portion of C=M=Y=64 to be a background.

In the foregoing embodiments, the present invention has been described with regard to a case where the background has a uniform density. It should be noted, however, that gradation may be given to the background, or a design may be put in the background. In the above-described example, gradation can be given to the

background by changing the gradation values of the
straight lines or changing the line pitch. It is also
possible to represent only the background by the dot area
modulation method, for example, on the basis of 4x4 data
5 concerning the original image instead of using straight
lines.

As has been stated above, according to the present
invention, the background of an image is reproduced as a
discontinuous image area using a pattern such as a stripe
10 pattern. Consequently, it is difficult to recognize
unevenness in printing of the pattern relative to the
surroundings. Thus, unevenness of density and color can be
made difficult to perceive by the eye.

It should be noted that the present invention is not
15 limited to the foregoing embodiments but can be modified
in a variety of ways.

WHAT IS CLAIMED IS:

1. An image processing system comprising:
an image processing unit for processing input image
data; and
5 an output unit for outputting an image processed in
the image processing unit;
wherein said image processing unit has a function of
cutting out a background portion of the image and
effecting color specification and further has a function
10 of specifying a method of processing the background
portion, and when printing the image, said output unit
recognizes the background portion on basis of said color
specification and carries out background processing for
the recognized background portion on basis of said
15 specified method of processing the background portion.
2. An image processing system according to claim 1,
wherein said output unit converts pixels into a pattern
and prints the background portion with a discontinuous
pattern on basis of the specified method of processing the
20 background portion.
3. An image processing system according to claim 2,
wherein said pattern is one of a stripe pattern and a dot
pattern.
4. An image processing system according to claim 1,
25 wherein said color specification specifies a uniform
density of a specific color.

ABSTRACT

An image processing system including an image processing unit for processing input image data and an output unit for outputting an image processed in the image processing unit. The image processing unit has the function of cutting out a background portion of the image and effecting color specification and further has the function of specifying a method of processing the background portion. When printing the image, the output unit recognizes the background portion on the basis of the color specification and carries out background processing for the recognized background portion on the basis of the specified background processing method. It is possible to prevent visible unevenness of printing from occurring in the background portion.

FIG. 1

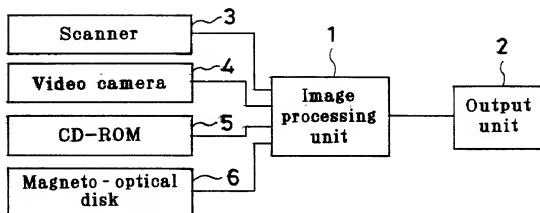


FIG. 2

(Host-side processing)

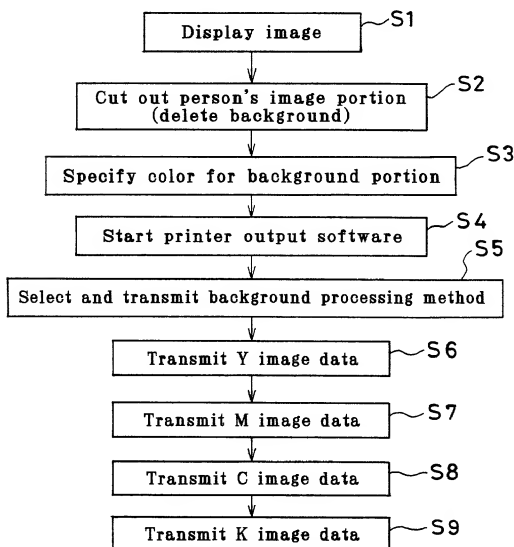


FIG. 3

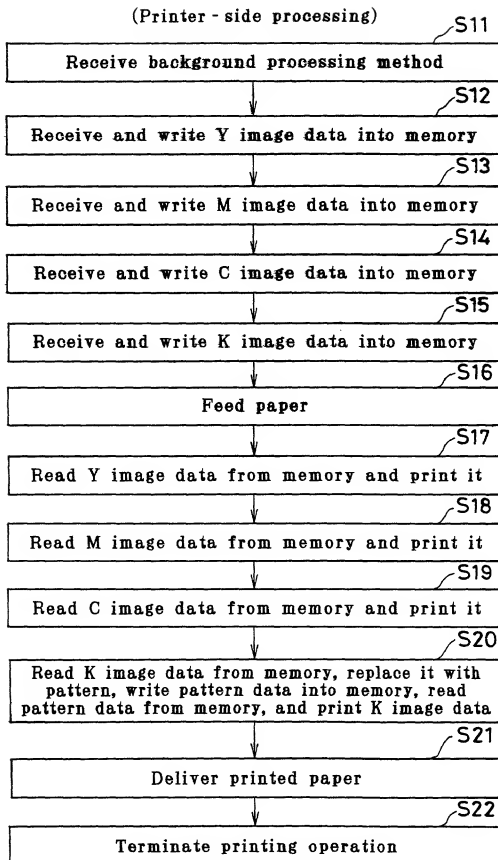
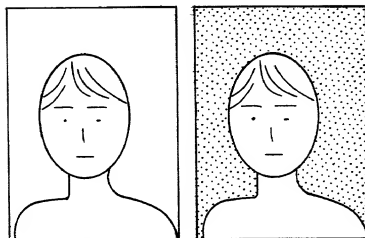


FIG. 4

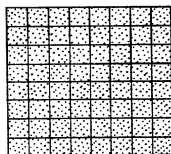


A

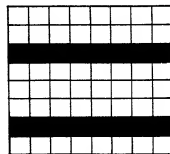
B



C



D



E

Attorney's Docket No. A-377

COMBINED DECLARATION AND POWER OF ATTORNEY
(ORIGINAL APPLICATION)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name, I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

IMAGE PROCESSING SYSTEM

the specification of which is attached hereto unless box (a) or (b) is checked, in which case

(a) ☐ the specification was filed on _____ as Application Serial No. _____.

(b) ☐ the specification was filed as PCT International Application No. _____ filed on _____ and was amended under PCT Art. 19 on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, sec. 1.56.

I have identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America and filed less than 12 months (6 months for designs) prior to this United States application and of which I claim foreign priority benefits under Title 35, United States Code, sec. 119, and I have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

EARLIEST FOREIGN APPLICATION, AND ALL FOREIGN
APPLICATIONS FILED MORE THAN 12 MONTHS (6 MONTHS FOR DESIGN)
PRIOR TO THIS U. S. APPLICATION

Country	Application No.	Date of Filing (Month/day/year)
Japan	11-252920	09/07/99
_____	_____	_____
_____	_____	_____

As a named inventor, I hereby appoint the following attorneys to prosecute this application and transact all business in the Patent and Trademark Office connected therewith and in connection with the resulting patent:

James H. Walters, Reg. No. 35,731
Michael O. Scheinberg, Reg. No. 36,919

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Suite 1101
Portland, Oregon 97204

(503) 224-0115

I authorize the attorneys that I have appointed to accept instructions regarding this application and the resulting patent from Azusa Patent Office.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Title 18, United States Code, sec. 1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Inventor's signature _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address _____

Full name of fifth joint inventor, if any _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address _____

Full name of sixth joint inventor, if any _____

Inventor's signature _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address _____

Full name of seventh joint inventor, if any _____

Inventor's signature _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address _____